for the collection of eighty or a hundred specimens of extremely rare varieties. The Committee hoped to present a report next year.

At the conclusion of the Conference, votes of thanks were passed to the Chairman and Secretary.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The Sheepshanks Astronomical Exhibition at Trinity College, open to the competition of any undergraduate of the University, has been awarded to Frank Watson Dyson and Gilbert Thomas Walker, brother scholars of the College, who are declared to be equal in merit. The value of the Exhibition is 50*l.* per annum, tenable for three years, and it will be divided between the successful candidates.

SCIENTIFIC SERIALS.

American Journal of Science, December.—The invisible solar and lunar spectrum, by S. P. Langley. This paper, which is an abstract of a memoir about to appear in the publications of the United States Academy of Sciences, summarizes the result of investigations carried on at the Allegheny Observatory in continuation of the author's previous researches on the infra-red of the solar spectrum to the extent of about three microns. By means of the improved apparatus here described, the extreme infra-red solar spectrum has now been searched from three to over eighteen microns; and it is shown that in this region the ratios between solar and lunar heat are completely changed from what they are in the visible spectrum. While the solar *light* in the latter is about 500,000 times that of moonlight, the solar heat received in the invisible part of the spectrum is probably less than 500 times the lunar. These studies also promise important results for meteorology, by opening to observation the hitherto unknown region of the spectrum, in which are to be found the nocturnal and diurnal radiations, not only from the moon towards the earth, but from the soil of the earth towards space.—A brief history of Taconic ideas, by James D. Dana. The Taconic question is here treated in chronological order from 1818 till the present year, in which the controversy may be regarded as practically closed. The conclusion is now firmly established that this system is not pre-Silurian, but merely another name for the older term "Lower Silurian."—Certain generic electrical relations of alloys of platinum, by C. Barus. In this paper are given the chief results of the investigations on the measurement of high temperatures already described in vol. xxxv. p. 407, of the *Journal*. The results generally point to a limit below which, in the case of solid metals and at ordinary temperatures, neither electrical conductivity nor temperature-coefficient can be reduced. It thus appears that a lower limit of both conductivity and temperature-coefficient is among the conditions of metallic conduction, not to say of the metallic state absolutely.—On the Puget group of Washington Territory, by Charles A. White. A careful study of some fossil Mollusca from the coal-bearing formation in the Puget Sound basin, shows that they belong to a hitherto unknown brackish-water fauna, characterizing a deposit of unusual interest. A section of this formation measured at the town of Wilkeson gives a minimum thickness of no less than 13,200 feet, with a probable maximum of 14,500 feet. The surprise caused by the discovery of such an extraordinary thickness in an estuary deposit is increased by the fact that its Molluscan fauna appears to range vertically throughout the whole formation. The fauna itself seems to be of the same age, but distinct from, the Laramie, which flourished, not in an estuary, but in a land-locked basin. The area of the Puget group includes the Cascade Range, but is not otherwise yet clearly defined eastwards from the Pacific seaboard.—Papers are contributed by L. G. Eakins, on some sulphantimonites from Colorado; by A. E. Kennelly, on the voltametric measurement of alternating Currents; by Dr. C. Hart Merriman, on the fauna of the Great Smoky Mountains, with description of a new species of red-backed mouse; by W. E. Hidden and J. B. Mackintosh, on anerlite, a new thorium mineral; and by O. C. Marsh, on a new family of horned Dinosaurians (*Ceratops montanus*) recently discovered *in situ* in the Laramie deposits of the Cretaceous period, in Montana. This reptile was a very formidable animal, armed not only with horns of great strength, but with a thick dermal hide, and varying in length from 25 to 30 feet.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, December 6.—"Some Observations on the Amount of Light reflected and transmitted by certain kinds of Glass." By Sir John Conroy, Bart., M.A., Bedford Lecturer of Balliol College and Millard Lecturer of Trinity College, Oxford. Communicated by A. G. Vernon Harcourt, F.R.S.

Conclusions.—It seems probable that the amount of light reflected by freshly polished glass varies with the way in which it has been polished, and that, if a perfect surface could be obtained without altering the refractive index of the surface-layer, then the amount would be accurately given by Fresnel's formula, but that usually the amount differs from that given by the formula, being sometimes greater and sometimes less.

The formation of a film of lower refractive index on the glass would account for the defect in the reflected light; but to account for the excess, it seems necessary to assume that the polishing has increased the optical density of the surface-layer, and the changes produced in the amount of light transmitted and in the angle of polarization support this view.

After being polished, the surface of flint glass seems to alter somewhat readily, the amount of the reflected light decreasing, and the amount of the transmitted increasing, whilst with crown glass the change, if any, proceeds very slowly.

There is no evidence to show to what particular cause these changes are due.

The values of the transmission coefficients for light of mean refrangibility for the two particular kinds of glass are given, and show that for 1 cm. the loss by obstruction amounts to 2·62 per cent. with the crown glass and 1·15 per cent. with the flint glass.

Linnean Society, December 6.—Mr. W. Carruthers, F.R.S., President, in the chair.—Mr. W. H. Beeby exhibited and made some remarks on specimens of *Valeriana mikanii* and *sambucifolia*, and a series of *Potamogeton fluitans*.—Mr. F. W. Oliver described the nature and growth of leaf-emergences in *Eriospermum foliolifernm*.—Mr. E. M. Holmes exhibited specimens of a new Assafœtida plant (*Ferula fœtidissima*), and a monstrosity of *Zea Mays*.—Mr. J. G. Baker exhibited a curious variety of *Vicia sepium*, found in North Yorkshire.—Mr. T. Christy exhibited specimens of an undetermined species of *Echium* received from Persia, and employed medicinally as a good alterative.—The first paper read was one by Dr. Costerus on malformation in *Fuchsia globosa*, upon which Prof. Bower offered some critical remarks.—The next paper was by Mr. B. T. Lowne, who gave an admirable demonstration of the mode of development of the egg and blastoderm of the blow-fly. His conclusions were criticized by Prof. Stewart, Prof. Howes, and Mr. A. R. Hammond.—In continuation of the Reports on the collections made by Mr. Ridley in Fernando Noronha, a paper was read on behalf of Mr. Boulenger, enumerating the fishes and reptiles which had been identified by him.

Physical Society, December 8.—Prof. Reinold, F.R.S., President, in the chair.—The following communications were read:—Note on a modification of the ordinary method of determining electro-magnetic capacity, by Dr. J. W. W. Waghorne.—On some facts connected with the systems of scientific units of measurement, by Mr. T. H. Blakesley.—Some improved polarizing apparatus for microscopes were exhibited and described by Dr. S. P. Thompson. For polarizer, he uses an Ahrens' prism, and for analyzer a flat-ended one of his own design. The Ahrens' prism is formed from a rectangular block of spar, two faces of which are perpendicular to the optic axis; two cuts parallel to the axis are made from the middle of one side to the ends of the opposite, and the cut faces are polished and cemented by Canada balsam. A short prism with wide angle is thus obtained, which can be readily fitted to the substage of the microscope. The analyzer, which consists of two wedges of spar, is mounted in a tube which fits on the eye-piece, and by recognizing that the upper end need not be larger than the pupil of the eye, the author has been able to considerably reduce the length of the prism, and still keep the bottom end large enough to collect all the rays passing through the eye-piece. Several ingenious methods of cutting spar so as to produce prisms with minimum waste were described and illustrated by models, and a "Nicol" made by the inventor at the age of 79 was exhibited. Mr. Lant Carpenter asked the author why he condemned analyzers placed directly behind the objective, for in his experience this arrangement gave the most satisfactory results. In reply, Dr. Thompson said his experience was decidedly different from that of Mr. Lant Carpenter, and mentioned that Zeiss had abandoned the common arrangement, and now introduced his analyzers between the two lenses of his Huyghenian eye-pieces.

Chemical Society, December 6.—Mr. W. Crookes, F.R.S., President, in the chair.—The following papers were read :—A method of determining vapour-density, applicable at all temperatures and pressures, by Dr. W. Bott. The apparatus consists of a large Victor Meyer's bulb, carrying a detachable head-piece, which can be connected with the air-pump. The neck of the bulb communicates with a mercury pressure-gauge, which again is connected with a wide measuring tube attached to an adjustable mercury reservoir. The experiment is conducted as follows. The substance having been placed in the head-piece of the vessel, the latter is heated until the volume has become constant. The apparatus is then exhausted as far as may be requisite, and the reservoir so adjusted that the graduated measuring tube is filled with mercury. The pressure indicated by the gauge having been carefully noted, the substance is allowed to drop into the hot part of the vessel, and the surplus pressure produced by its evaporation is removed by drawing off an equivalent volume of air into the measuring tube until the initial pressure in the gauge has been restored. From the volume of gas measured in the graduated tube, the density referred to hydrogen is obtained by the formula $d = 8484893\frac{S(1 + 0{\cdot}00367t)}{VP}$; in which S = weight of substance, V = volume of gas in measuring tube, P = pressure of gas in measuring tube, t = temperature of gas. In the discussion which followed, Prof. Ramsay, remarking on a statement made by the author that he proposed to make use of the apparatus in studying the influence of pressure on dissociation, said that recent investigations had shown that the Victor Meyer form of apparatus was by no means a suitable one for the study of such problems ; and he expressed the opinion that for this reason results such as those recently published by Nilson and Petterssen could not be accepted as final.—Some derivatives and new colouring-matters of α-pyrocresole, by Dr. W. Bott and Mr. J. B. Miller. The authors have prepared di- and tetranitro- and di- and tetramido- derivatives of α-pyrocresole oxide. Both amido-derivatives can be diazotized, and the diazo-salts interact with β-naphthol in alkaline solution, yielding two oxyazo-compounds ; these are insoluble in water, but can be converted into soluble sulphonic acids, which dye silk and wool maroon and salmon colour respectively.—Berberine, by Prof. W. H. Perkin. When oxidized with excess of potassium permanganate in slightly alkaline solution, berberine yields, as principal product, hemipinic acid, $C_{10}H_{10}O_6$, as Schmidt and Schilbach (*Arch. Pharm.* [3], 164–170) have already shown. In view of the interesting results lately obtained by Goldschmiedt in his examination of hemipinic and methemipinic acids, the author has carefully re-examined the hemipinic acid from berberine, and is convinced that it is identical with that obtained by the oxidation of narcotine. The acid from berberine contains two (OCH_3) groups : on fusion with potash it yields protocatechuic acid ; and on distilling it with ethylamine, hemipinethylimide, melting at 96°, is formed. This latter substance possesses all the properties of the hemipinethylimide obtained by Liebermann by the action of ethyl iodide on the potassium salt of hemipinimide (from narcotine), and thus the identity of the two hemipinic acids from berberbine and narcotine is proved. Oxidation with a limited quantity of permanganate results in the production of a number of new substances, three of which have been obtained in a state of purity : a new acid, $C_{20}H_{17}NO_9$ (m.p. = 143°), and two neutral substances, $C_{20}H_{17}NO_8$ (m.p. = 236°) and $C_{20}H_{15}NO_7$ (m.p. = 150°), all of which yield protocatechuic acid on fusion with potash. Employing Zeisel's method, the author finds that two methoxyl (OCH_3) groups are present in the berberine molecule.—The action of ammonia on some tungsten compounds, by Dr. S. Rideal.—Condensations of α-diketones with ethylic acetoacetate, by Dr. F. R. Japp, F.R.S., and Dr. F. Klingemann. A preliminary note on the reactions of ethylic phenanthroxylene-acetoacetate, the condensation compound of phenanthraquinone with ethylic acetoacetate.—Thionyl thiocyanate, by Mr. G. C. McMurtry.—Mercuric chlorothiocyanate, by the same.—The action of chromium oxychloride on pinene, by Messrs. G. G. Hendersonand R. W. Smith.—Tectoquinone, by Dr. R. Romanis. A continuation of the author's work on the quinone-like compound, $C_{18}H_{16}O_2$, found in teak resin (*Tectonia grandis*), and also in the products of the destructive distillation of the wood. Tectoquinone crystallizes in oblique rhombic prisms of an amber colour, resembling sulphur, melts at 171°, and is a very stable substance, dissolving in nitric and sulphuric acids without change. On reduction it yields a hydrocarbon, $C_{18}H_{22}$, and it is suggested that it may be the hitherto unknown retenequinone.—The decomposition of nitroethane by alkalies, by Prof. W. R. Dunstan and Mr. T. S. Dymond. Nitroethane in contact with potassium carbonate or its aqueous solution readily yields potassium nitrite and an oily liquid having the formula C_6H_9NO, which boils at about 170°, decomposing at a somewhat higher temperature with the formation of what appears to be a pyridine derivative.

Zoological Society, November 20.—Prof. Flower, F.R.S., President, in the chair.—The Secretary read a report on the additions that had been made to the Society's Menagerie during the months of June, July, August, September, and October, 1888, and called attention to the acquisition of three specimens of Pallas's Sand-Grouse (*Syrrhaptes paradoxus*), captured out of the many flocks of this Asiatic bird that have lately visited the British Islands.—A letter was read from Prof. J. B. Steere, giving a preliminary account of the "Tamaron," a bovine animal found in the Island of Mindoro, Philippines, which he believed to be allied to the Anoa of Celebes.—Mr. Edgar Thurston exhibited and made remarks upon a collection of Corals from the Gulf of Manar, Madras Presidency.—Mr. H. Seebohm exhibited and made remarks on a specimen of a new species of Pheasant (*Phasianus tarimensis*), obtained by General Prjevalsky at Lob Nor, Central Asia.—Mr. H. Seebohm also exhibited a specimen of a species of Plover new to the British Islands (*Vanellus gregarius*), which had been shot in Lancashire about twenty-five years ago, and had been previously supposed to be a Cream-coloured Courser.—Mr. J. W. Hulke, F.R.S., read a paper on the skeletal anatomy of the Mesosuchian Crocodiles, based on fossil remains from the clays near Peterborough, in the collection of Mr. A. Leids, of Eyebury.—Mr. Oldfield Thomas read a paper on a collection of small Mammals obtained by Mr. William Taylor in Duval County, South Texas. The collection contained examples of one new species and one new geographical variety, besides adding no less than six species to the national collection of Mammalia.—A communication was read from M. L. Taczanowski, containing a supplementary list of the birds collected in Corea by Mr. Jean Kalinowski.

December 4.—Prof. Flower, F.R.S., President, in the chair.—Mr. Howard Saunders exhibited and made remarks on an adult male of the American Green-winged Teal (*Querquedula carolinensis*), shot in Devonshire in 1879.—Mr. Oldfield Thomas gave an account of the Mammals obtained by Mr. C. M. Woodford during his second expedition to the Solomon Islands. The author stated that the total number of species of Mammals now known from the Solomons was brought up by the present collection from 13 to 22, and that of these no less than 8 had been discovered by Mr. Woodford, his previous collection having contained examples of 2 and the present of 6 new species. There were also two new genera of Bats to be added to the one previously described.—Mr. F. E. Beddard read a paper upon the genus *Clitellio*, which had been recently investigated by him at the Marine Biological Station at Plymouth.—Prof. Howes and Mr. Davies read a paper on the distribution and morphology of the supernumerary phalanges in the Anurous Batrachians.—A communication was read from Mr. J. J. Lister, giving a general account of the natural history of Christmas Island, in the Indian Ocean, which he had visited in 1887 as naturalist to H.M. surveying-vessel *Egeria*.—Mr. Oldfield Thomas read a paper on the Mammals of Christmas Island, obtained by Mr. Lister during the same expedition.—This was followed by reports on the Reptiles of Christmas Island obtained during the expedition, by Mr. G. Boulenger ; on the Terrestrial Mollusks, by Mr. Edgar A. Smith, on the Coleoptera, by Mr. C. J. Gahan ; on the Lepidoptera, by Mr. A. G. Butler ; on the other Insects, by Mr. Kirby ; and on the Annelida, Myriapoda, and Land Crustacea, by Mr. R. I. Pocock.

Entomological Society, December 5.—Dr. D. Sharp, President, in the chair.—Mr. W. F. Kirby exhibited, for the Rev. Dr. Walker, a variety of the female of *Ornithoptera brookiana ;* also, for Major Partridge, an undetermined species of the genus *Hadena*, captured last summer in the Isle of Portland.—Mr. R. South exhibited a series of *Tortrix piceana*, L., from a pine wood in Surrey; also melanic forms of *Tortrix podana*, S.—Prof. Meldola, F.R.S., exhibited, for Dr. Laver, a melanic specimen of *Catocala nupta*, taken last September at Colchester.—Mr. E. B. Poulton exhibited preserved larvæ of *Sphinx convolvuli*, showing the extreme dark and light forms of the species.—Mr. McLachlan, F.R.S, called attention to a plate, representing species of the genus *Agrotis*, executed by photography, illustrating a memoir by Dr. Max Standfuss, in the *Correspondenz-Blatt*, Verein *Iris*, in Dresden, 1888. He considered it was the best example of photography as adapted for entomological purposes he had ever seen.—The Rev. Canon Fowler exhibited a specimen of *Mycterus curculionides*, L., sent to him by Mr. Olliff, and taken near Oxford about 1882.—Mr. W. Nicholson exhibited several melanic varieties of *Argynnis niobe* and *A. pales*, collected by himself last summer in the Engadine.—Mr. J. H. Leech exhibited a collection of Lepidoptera formed last year at Kiukiang. It included several new species.—Mr. H. Goss exhibited, for the Rev. T. A. Marshall, fifteen undescribed species of British *Braconidæ*.—M. A. Wailly exhibited a collection of Lepidoptera lately received from Assam, containing upwards of thirty-five species of *Papilio*, *Ornithoptera*, *Charaxes*, *Diadema*, *Cyrestis*, and other genera.—Mr. Meyer-Darcis exhibited specimens of *Sternocera tricolor*, Kerr, and *S. variabilis*, Kerr, from Lake Tanganyika; and two new species of *Julodis* from Syria.—Mr. F. Merrifield exhibited, and made remarks on, a long series of *Selenia illustraria*, *S. illunaria*, and *E. alniaria*, in illustration of his paper on "Pedigree Moth-breeding."—Lord Walsingham, F.R.S., exhibited, and made remarks on, a series of species representing the genera *Snellenia*, Wlsm., *Œdematopoda*, Z., and *Eretmocera*, Z.—The Rev. T. A. Marshall communicated a paper entitled "A Monograph of British *Braconidæ*, Part III."—The Rev. Dr. Walker communicated a paper entitled "Description of a variety of the female of *Ornithoptera brookiana*."—Lord Walsingham read a paper entitled "A Monograph of the genera connecting *Tinægeria*, Wlk., with *Eretmocera*, Z." A discussion ensued, in which Mr. Stainton, F.R.S., and Dr. Sharp took part.—Mr. Merrifield read a paper entitled "Incidental Observations in Pedigree Moth-breeding." This paper contained a detailed account of experiments with *Selenia illustraria*, *S. illunaria*, and *E. alniaria*, which, so far as they had yet proceeded, indicated that retardation of development in the growing stages of the larvæ, as well as in the pupal stage, was the cause of the darkening of colour in the perfect insects; and that a low temperature had the effect of causing such retardation. Lord Walsingham, Mr. Poulton, Prof. Meldola, Mr. White, and Mr. Merrifield took part in the discussion which ensued.—Mr. J. H. Leech read a paper entitled "Description of a small collection of Lepidoptera from Kiukiang." Captain Elwes said he had examined this collection with very great interest, and was struck with the similarity of many of the species to those from Sikkim.

Geological Society, December 5.—Dr. W. T. Blanford, F.R.S., President, in the chair.—The following communications were read:—Notes on two traverses of the crystalline rocks of the Alps, by Prof. T. G. Bonney, F.R.S. These journeys were undertaken in the summer of 1887, in the company of the Rev. E. Hill, in order to ascertain whether the apparent stratigraphical succession among the gneisses and crystalline schists which the author had observed in the more central region of the Alps, held good also in the Western and Eastern Alps. At the same time all circumstances which seemed to throw any light on the origin of the schists were carefully noted. The author examined the rocks along two lines of section:—(1) By the road of the Col du Lautaret from Grenoble to Briançon, and thence by the Mont Genèvre and the Col de Sestrières to Pinerolo, on the margin of the plain of Piedmont. (2) From Lienz, on the upper waters of the Drave, to Kitzbuhel; besides examining other parts of the central range, east of the Brenner Pass. The specimens collected have subsequently been examined microscopically. The results of the author's investigation may be briefly summarized as follows:—(1) While rocks of igneous origin occur at all horizons among the crystalline series of the Alps, these, as a rule, can be distinguished; or, at any rate, even if the crystalline schists in some cases are only modified igneous rocks, these are associated with recognizable igneous rocks of later date. (2) There are, speaking in general terms, three great rock-groups in the Alps which simulate curiously, if they do not indicate, stratigraphical sequence. The lowest and oldest resembles the gneisses of the Laurentian series; the next, those rather "friable" gneisses and schists called by Dr. Sterry Hunt the Montalban series; the third and uppermost is a great group of schists, generally rather fine-grained, micaceous, chloritic, epidotic, calcareous, and quartzose, passing occasionally into crystalline limestones, and (more rarely) into schistose quartzites. (3) The Pietra Verde group of Dr. Sterry Hunt, so far as the author has been able to ascertain, consists mainly of modified igneous rocks, of indeterminable date, and is at most only of local, if, indeed, it be of any classificatory value. (4) Of the above three groups the uppermost has an immense development in the Italian Alps and in the Tyrol, north and south of the central range. It can, in fact, be traced, apparently at the top of the crystalline succession, from one end of the Alpine chain to the other. (5) The middle group is not seldom either imperfectly developed or even wanting, appearing as if cut out by denudation. It was not seen in the traverse of the Franco-Italian Alps, except perhaps for a comparatively short distance on the eastern side, being probably concealed by Palæozoic and Mesozoic rocks on the western side. It is not very completely developed in the Eastern Tyrol, and seems to prevail especially in the Lepontine Alps, and on the southern side of the watershed. (6) The lowest group is fairly well exposed, both in the French Alps and in the Central Tyrol. (7) As a rule, the schists of the uppermost group had a sedimentary origin. The schists and gneisses of the middle group very probably, in part at least, had a similar origin. In regard to the lowest group it is difficult, in the present state of our knowledge, to come to any conclusion. (8) The slates and other rocks of clastic origin in the Alps, whether of Mesozoic or of Palæozoic age, though somewhat modified by pressure, are totally distinct from the true schists above mentioned, and it is only under very exceptional circumstances, and in very restricted areas, that there is the slightest difficulty in distinguishing between them. The evidence of the coarser fragmental material in these Palæozoic and later rocks indicates that the gneisses and crystalline schists of the Alps are very much more ancient than even the oldest of them. (9) The remarks made by the author in his Presidential address, 1886, as to the existence of a "cleavage-foliation" due to pressure, and a "stratification-foliation" of earlier date, which seemingly is the result of an original bedding, and as to the importance of distinguishing these structures (generally not a difficult thing), have been most fully confirmed. He is convinced that many of the contradictory statements and much of the confusion in regard to the origin and significance of foliation are due to the failure to recognize the distinctness of these two structures. In regard to them it may be admitted that sometimes "extremes meet," and a crystalline rock pulverized *in situ* is very difficult to separate from a greatly squeezed fine-grained sediment; but he believes these difficulties to be very local, probably only of a temporary character, and of little value for inductive purposes. After the reading of this paper, the author's conclusions were discussed by the President, Mr. Teall, Dr. Hicks, Mr. Bauerman, Prof. Blake, and Dr. Geikie.—On fulgurites from Monte Viso, by Frank Rutley.—On the occurrence of a new form of tachylyte in association with the gabbro of Carrock Fell, in the Lake District, by T. T. Groom. Communicated by Prof. T. McKenny Hughes.

PARIS.

Academy of Sciences, December 10.—M. Daubree in the chair.—Observations of Faye's comet, made at the Marseilles Observatory, with the 0·80 m. Foucault telescope, by M. Stephan. These observations cover the period from December 5-8, when the nucleus was equal to a star of the eleventh or twelfth magnitude.—Geographical work in Brazil, by M. L. Cruls. The Imperial Observatory of Rio de Janeiro having undertaken to determine the geographical positions of a number of stations on the railway between the capital and Sabara, the results are given for the first two stations of Rodeio and Entre-Rios.—On the application of the theta functions of a single argument to the problems of rotation, by M. F. Caspary. A *résumé* is given of the calculations which the author has worked out with a view to determining the formulas relative to the problem of rotation of a heavy body suspended at a point of its axis.—On a general proposition regarding linear equations with partial derivatives of the second order, by M. Emile Picard.—On the employment of oxygenated water for the quantitative analysis of the metals of the iron group: (1) chromium, by M. Adolphe Carnot. On the solutions of various metals of the iron group oxygenated water determines certain reactions, sometimes of a reducing, sometimes of an oxidating, character. This property is capable of being turned to account in chemical analysis, and the author proposes to deal successively with chromium, manganese, iron, cobalt, and nickel. In the present paper he shows the remarkable reaction furnished by chromic acid with oxygenated water, known as the Barreswil reaction.—On a latex of *Bassia latifolia*, Roxb., by MM. Edouard Heckel and Fr. Schlagdenhauffen. This plant, the well-known *Mohwa* of British India, is found to yield by incision a latex capable of supplying a kind of gutta-percha. When evaporated to about one-fourth of its volume, the sap furnishes an adhesive mass in the proportion of 6·67 per cent., which is partly soluble in alcohol and acetone, and which in the insoluble state leaves 27·027 per cent. of a gutta, the composition and industrial properties of which will form the subject of a future memoir.—On some new or little-known Infusoria, by M. J. Kunstler. Several minute intestinal parasites of various animals are described, including a remarkable ciliated Infusorium peculiar to *Periplaneta americana*.—On the *coussinet* (*cushion* or *pad*), a new organ attached to the sting of the Hymenoptera, by M. G. Carlet. This organ, here for the first time described, appears to be a sort of pivot round which the sting revolves, preventing this weapon from adhering to the teguments, and facilitating its movements. But the chief function of the "pad" is to retain in the sacs of the trachea the supply of air necessary for their inflation. This it effects by facilitating the action of the operculum, which thus appears to be a veritable safety-valve in the abdominal region.—On the measurement of the large bones in the human system, and on its applications to anthropological and medico-legal questions, by M. Etienne Rollet. The results are given of the measurements, made with Broca's apparatus, of the large bones of fifty men and fifty women lately deceased in the hospitals of Lyons. Much asymmetry was discovered between the bones on the right and left sides of the skeleton. An attempt made to determine stature from the size especially of the femur and humerus yielded satisfactory results. Compared with those of negroes and negresses, these measurements show generally that in the black race the upper and lower members, especially tibia and radius, are longer than in the South European, the difference being more marked in the female than in the male sex.—On the phosphated deposits of Montay and Forest, Département du Nord, by M. J. Ladrière. The author describes the origin and composition of these deposits, which in some places are rich enough to be worked with profit.—The dislocations of the primitive formations in the north of the central plateau of France, by M. L. de Launay. The lacustrine and independent origin of the various coal basins in this region is generally admitted by modern geologists. Here the author goes further, and endeavours to determine the causes to which was due the creation of the pre-Carboniferous lakes themselves, as well as their actual position on the plateau. This study is largely based on an entirely new and minute examination of the foldings to which the gneisses and mica-schists of the underlying systems have been subjected. The history of these movements, comprising a considerable number of progressive phases, shows that the successive dislocations invariably took place in the same direction, each great disturbance being merely an intensified repetition of the preceding. The general result in this region was to connect in one vast V-shaped system the Breton and Morvan foldings running respectively in the directions from north-east to south-east and from north-east to south-west.

AMSTERDAM.

Royal Academy of Sciences, November 24.—M. Hugo de Vries read a paper on the pangenesis of Darwin, expressing the conviction that Darwin's doctrine presents a great many more data for the explanation of various phenomena in the domain of heredity than the doctrine of Weismann. The author especially tried to demonstrate that the hypothesis of the transport of gemmules may be rejected without endangering the validity of the arguments implicated in that hypothesis, which would connect the separate properties of any organism with some definite species of particles of living matter. He also pointed to the fact that the theory expounded after Darwin's time, according to which the nucleus of the germ-cell must be the seat of heredity, is in accordance with the import of the last-mentioned hypothesis.—On tænodal points, by M. Korteweg. The author treated of their first appearance and disappearance on a gradually deformed surface. There exist four kinds of singular points of the first order of exceptionality, where two or more tænodal points come together, viz. two quite different species of double tænodal points—oscular points and conical points. When a double tænodal point occurs on the variable surface, a couple of tænodal points pass from reality to non-reality, or *vice versâ*. An oscular point is not accompanied by any change in the number of real tænodal points. In a conical node, as many couples as there are real double lines (six at most) at the conical node of the cubic surface obtained by neglecting all terms of the fourth order and higher, become real or imaginary according to the direction of the deformation. The other couples (six at least) cannot emerge from non-reality. As an immediate result of his general theory, the author deduces the theorem: The difference between the number of real tænodal points and real lines is the same for every cubic surface, and equal to three.—M. Martin showed that the lower jaw, found in the year 1823 when digging the canal called "Luid-Willemsvaart," in the Kaberg, near Maestricht, and hitherto regarded as the remains of a so-called fossil or diluvial human being, was not found in the geological formation which harbours such remains, but in another of more recent date, so that the importance of this jaw—found by the author after a long and troublesome search in the anatomical cabinet of the Leyden University—can no longer be maintained. —M. Martin stated that he had discovered recently, in a parcel of petrifactions collected by the mining engineer, J. A. Hooze, in Martapoera, some characteristic fossils from the chalk-formation; so that it is positively ascertained that in the south-eastern part of Borneo there exists a chalk-formation, as was formerly supposed by Geinitz.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

Seas and Skies in many Latitudes: Hon. Ralph Abercromby (Stanford).—The Region of the Eternal Fire, Popular Edition: C. Marvin (Allen).—The Floral King; a Life of Linnæus: A. Alberg (Allen).—The British Journal Photographic Almanac, 1889 (Greenwood).—Nature's Fairy-Land, 2nd edition: H. W. S. Worsley-Benison (E. Stock).—Hand-book to the Optical Lantern: Welford and Sturmey (Iliffe).—The Blowpipe in Chemistry, Mineralogy, and Geology, 2nd edition: Lieut.-Colonel W. A. Ross (Lockwood).—Round about New Zealand: E. W. Payton (Chapman and Hall).—Through the Heart of Asia, 2 vols.; G. Bonvalot (Chapman and Hall).—Natural History Collections made in Alaska between the Years 1877 and 1881: E. W. Nelson (Washington).—Our Rarer Birds: C. Dixon (Bentley).—The Alps: Prof. F. Umlauft, translated by L. Brough (K. Paul).

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